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"PATENT APPLICATION"

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
Before the Board of Patent Appeals and Interferences

In re Application of

JEAN-PIERE TAHON ET AL

APPEAL No.

U.S. Serial No. 09/689,632

Group Art Unit 1772

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S. Hon, Examiner

LIQUID CRYSTAL ALIGNMENT  
LAYER

Alexandria, Virginia  
April 27, 2006

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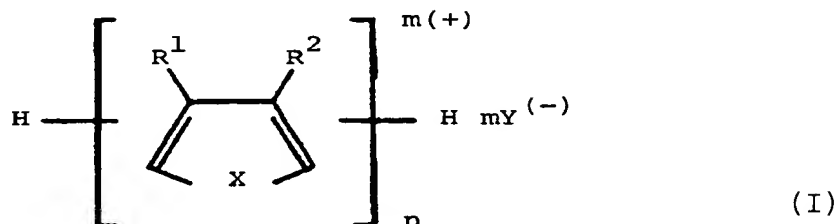
REPLY BRIEF

Dear Sir:

This Reply Brief is being submitted in response to the Examiner's Answer mailed February 28, 2006 in order to respond to new points of argument raised by the Examiner and to avoid acquiescence in the position of the Examiner. If a point raised by the Examiner is not specifically addressed herein, such is not to be understood as acquiescence therein, but rather that applicants rely on the Appeal Brief earlier filed November 30, 2005.

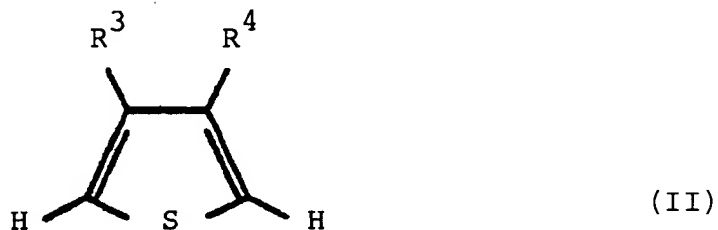
The primary reference U.S. Patent No. 5,118,538 (Escher) teaches a liquid crystal switching and display

element including an orientating layer containing an electrically conductive polymer of formula (I) as follows:



where  $\text{R}^1$ ,  $\text{R}^2$  are, independently of each other, H, or straight-chain or branched alkyl or alkoxy containing 1-16 carbon atoms, or halogen, X is sulfur or NH, Y is  $\text{BF}_4^-$ ,  $\text{PF}_5^-$ ,  $\text{PO}_4^{3-}$ ,  $\text{AsF}_6^-$ ,  $\text{SbCl}_6^-$ ,  $\text{SO}_4^{2-}$ ,  $\text{HSO}_4^-$ , alkyl- $\text{SO}_3^-$ , perfluoroalkyl- $\text{SO}_3^-$ , aryl- $\text{SO}_3^-$ , F- or Cl-, n is an integer from 4 to 100 and m is an integer from 1 to 30. Formula (I) does not therefore include applicants' claimed structure having ring substituents  $\text{R}^1$  and  $\text{R}^2$  which together represent a  $\text{C}_1$ - $\text{C}_4$  alkylene group or cycloalkylene group.

Escher also acknowledges that electrically conductive polymers derived from a monomer of formula (II) as follows:



is described in German Published Application Nos. 3,717,668, 3,628,895 and 3,736,114. The secondary reference, U.S.

Patent No. 5,286,414 (Kampf) corresponds to German Published Application No. 3,717,668. In Formula (II), at least one of the two radicals  $R^3$  and  $R^4$  is an alkoxy group and the other is optionally  $C_1-C_6$  alkyl or hydrogen.  $R^3$  and  $R^4$  of formula (II) also do not encompass applicants' claimed polythiophene. Accordingly, Escher specifically defines  $R^3$  and  $R^4$  and further states that such "have already been described" (column 2, line 47) in the above listed German applications, i.e., simply acknowledges that the specific structure of formula (II) is previously known. Escher does not teach or suggest that the other compounds disclosed in the German applications (and thus Kampf) are useful in the orienting layer described in Escher. Rather, since Escher only sets forth a monomer with limited substituents, as compared to the overall teaching of the referred to art, it would logically follow that only the specifically named monomer with defined substituents are considered suitable for use in the orienting layer taught by Escher. Thus, Escher teaches away from using the other compounds disclosed in the acknowledged prior art since such is known but not taught for use. At column 1, line 65 to column 2, line 11, of Escher, German prior art is acknowledged and described as already proposing to considerably reduce or suppress optical hysteresis, but that surprisingly, optical hysteresis can be

suppressed by a liquid crystal switching and display element including an orienting layer containing an electrically conductive polymer of formula (I). Polymers derived from the monomer of formula (II) are also stated to be electrically conductive polymers. The polymers derived from the monomer of formula (II) are otherwise not described or claimed in Escher. Thus, no objective teaching is provided by Escher to provide the combination as claimed by applicants since Escher does not describe the claimed polythiophene and by intentional omission of inclusion of other known variables teaches away from the use of other features disclosed in Kampf.

Therefore, applicants submit Escher does not teach or suggest the claimed polythiophene. The Examiner acknowledges that Escher also fails to disclose an electroconductive layer or electrode made out of indium tin oxide, a liquid crystal alignment layer which is a patterned layer including conducting and non-conducting areas, and an adhesion-improving anchor layer having barrier properties with regard to compounds which may diffuse from the substrate. The Examiner relies on Eguchi for teaching elements other than the polymer. Since Eguchi, however, does not teach the claimed polythiophene (a critical element of the claimed invention), Eguchi can not make up for the

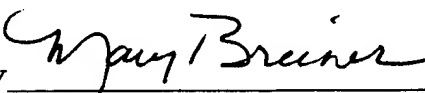
shortcomings of Escher and, therefore, the combination of Escher and Eguchi can not render the claimed invention obvious within the meaning of 35 U.S.C. §103. In view of the limited and specific disclosure in Escher of electrically conductive polymers for use in the orienting layer described therein, and acknowledgment of the teaching in German Application No. 3,717,668 (and thus of Kampf), one skilled in the art would understand Escher to teach away from modifying the teachings of Escher with those of Kampf. Other suggestion would only be a posteriori from knowledge of applicants' invention.

Thus, applicants' respectfully submit that a factual basis is missing for combining the applied references in a manner so as to provide applicants' claimed invention. The applied art does not provide the claimed combination or recognize any criticality as to the specific claimed features in order to suggest the claimed invention.

Accordingly, applicants respectfully request reversal of the rejections of the claims.

Respectfully submitted,

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